

### REMARKS

Claims 1, 3, 6, and 7 have been amended herein. Upon entry of this amendment, claims 1-17 will be pending in the above-identified Application.

#### Claim 6 – Double Patenting

Upon allowance of one of the claims, Applicants will consider the appropriateness of a terminal disclaimer.

#### Claims 6 and 7 – Section 102 (Verhaverbeke)

Applicants respectfully request reconsideration of the rejection of claims 6 and 7 under 35 U.S.C. § 102(e) as being anticipated by Verhaverbeke. As amended, claims 6 and 7 recite a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia.

Verhaverbeke discloses a system for semiconductor processing using ammonium fluoride and deionized water as processing fluids. Verhaverbeke does not disclose a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia.

Because Verhaverbeke does not teach all of the elements of claims 6 and 7, the Section 102 rejection is improper. Accordingly, Applicants respectfully request the rejection be withdrawn.

#### Claims 6-8, 12, and 13 – Section 102 (JP '461)

Applicants respectfully request reconsideration of the rejection of claims 6-8, 12, and 13 under 35 U.S.C. § 102(e) as being anticipated by Japanese Patent JP408334461A (JP '461). As amended, each claim recites a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia.

JP '461 teaches a wet treatment apparatus using a mixed aqueous solution of ammonium fluoride and hydrogen fluoride. JP '461 does not disclose a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia.

Because JP '461 does not teach all of the elements of the claims, the Section 102 rejection is improper. Accordingly, Applicants respectfully request the rejection be withdrawn.

Claims 6 and 7 – Section 103 (Verhaverbeke)

Applicants respectfully request reconsideration of the rejection of claims 6 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Verhaverbeke. As amended, claims 6 and 7 recite a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia, and fluid feeding means for feeding the fluid from the fluid source to the substrate cleaning bath. Verhaverbeke discloses a system for semiconductor processing using ammonium fluoride and deionized water as processing fluids.

Verhaverbeke does not show or suggest a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia. Though Verhaverbeke teaches liquids to be used for semiconductor processing, it would not have been obvious to one of ordinary skill in the art at the time of the present invention to use ammonia or aqueous ammonia as a fluid source constituent as claimed. Evidence of this non-obviousness is, among others, the fact that ammonium and aqueous ammonium were not used as claimed at the time of invention despite the great advantages of using them.

Also, there is insufficient motivation in the prior art to use ammonia or aqueous ammonia. See MPEP 2143 (identifying the basic elements of a *prima facie* case of obviousness). The Office action states that, since the prior art includes corrosive liquids, "it would be obvious to those skilled in the art that these same feeding means would be operable with other corrosive liquids, such as aqueous ammonia with the reasonable expectation of success." According to this statement, because certain types of corrosive liquids are used in the prior art, use of *any* corrosive fluid was obvious. This basis for obviousness is improper for at least three reasons.

First, a holding that it would have been obvious to use specific implements only because other implements have been used for a similar purpose in the prior art necessarily relies on hindsight when the specific implements had not been used before for the same purpose. That is, it is improper to conclude that use of specific implements

having marked advantages and never disclosed to the public, except for in the instant disclosure, are automatically obvious because they have common characteristics with prior implements. The MPEP states that examiners should carefully guard against the natural tendency to resort to hindsight. See MPEP 2142.

Second, it is *not* inherently obvious to substitute one type of implement in the place of another type of implement. See MPEP 2143.01 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) (holding that it was *not* obvious to substitute one type of detector for another)).

Third, regarding making a *prima facie* case of equivalence, the MPEP calls for examiners to demonstrate "why it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute applicant's described...material...for that described in the prior art reference." See MPEP 2183. Thus, the appropriate obviousness question in the present case is whether it would have been obvious to one of ordinary skill in the art at the time that the invention was made to implement ammonia or aqueous ammonia in the teachings of the prior art. The Office action addresses the wrong question. The action's obviousness statement considers what "would be obvious", instead of what "would have been obvious". Such error shows an improper perspective, from which the Examiner impermissibly considers obviousness in hindsight. The stated obviousness basis also focuses on whether it would be obvious "that (the) feeding means would be operable with other...liquids", instead of properly showing how or why it would have been obvious to implement one of *these particular fluids*. Finally, the reasoning to alter the references because one of ordinary skill would have a "reasonable expectation of success" is overly broad and, thus, an insufficient basis.

Further, the MPEP requires the Examiner to consider secondary considerations of non-obviousness. See e.g., MPEP 2141 and 716.01(a). The Applicants have enclosed herewith a Declaration under 37 C.F.R. § 1.132 providing evidence of the results of experiments comparing the claimed invention with the nearest prior art. The Applicants respectfully submit that the enclosed Declaration shows unexpected results over the prior art, and more specifically an unexpected difference between using aqueous ammonia or ammonia as replenishing fluids and using prior art replenishing fluids including water and ammonium fluoride.

The results described in the Declaration are significant and were not expected at the time of invention. The prior art in the instant case does not contain teachings that lead to a general expectation of greater performance from using ammonia or aqueous ammonia as cleaning or replenishing fluids or even mention such use.

Because the Verhaverbeke does not show or suggest all of the elements of the claims, the rejection of it is improper. Accordingly, Applicants respectfully request that the rejection be withdrawn.

Claims 6, 7, 8, 12, and 13 – Section 103 (JP '461)

Applicants respectfully request reconsideration of the rejection of claims 6, 7, 8, 12, and 13 under 35 U.S.C. § 103(a) as being unpatentable over JP '461. As amended, claims 6, 7, 8, 12, and 13 recite a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia, and fluid feeding means for feeding the fluid from the fluid source to the substrate cleaning bath. JP '461 teaches a wet treatment apparatus using a mixed aqueous solution of ammonium fluoride and hydrogen fluoride.

JP '461 does not show or suggest a fluid source comprising at least one fluid selected from a group consisting of ammonia and aqueous ammonia. Though JP '461 teaches liquids to be used for semiconductor processing, it would not have been obvious to one of ordinary skill in the art at the time of the present invention to use ammonia or aqueous ammonia as a fluid source constituent as claimed. Evidence of this non-obviousness is, among others, the fact that ammonium and aqueous ammonium were not used as claimed at the time of invention despite the great advantages of using them.

Also, there is insufficient motivation in the prior art to use ammonia or aqueous ammonia. See MPEP 2143 (identifying the basic elements of a *prima facie* case of obviousness). The Office action states that, since the prior art includes corrosive liquids, "it would be obvious to those skilled in the art that these same feeding means would be operable with other corrosive liquids, such as aqueous ammonia with the reasonable expectation of success." According to this statement, because certain types of corrosive liquids are used in the prior art, use of any corrosive fluid was obvious.

This basis for obviousness is improper for the same three reasons discussed above with respect to Verhaverbeke.

Further, the MPEP requires the Examiner to consider secondary considerations of non-obviousness. See e.g., MPEP 2141 and 716.01(a). The Applicants have enclosed herewith a Declaration under 37 C.F.R. § 1.132 providing evidence of the results of experiments comparing the claimed invention with the nearest prior art. The Applicants respectfully submit that the enclosed Declaration shows unexpected results over the prior art, and more specifically an unexpected difference between using aqueous ammonia or ammonia as replenishing fluids and using prior art replenishing fluids including water and ammonium fluoride.

The results described in the Declaration are significant and were not expected at the time of invention. The prior art in the instant case does not contain teachings that lead to a general expectation of greater performance from using ammonia or aqueous ammonia as cleaning or replenishing fluids or even mention such use.

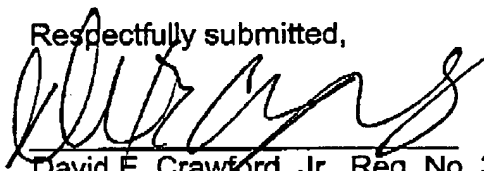
Because JP '461 does not show or suggest all of the elements of the claims, the rejection of it is improper. Accordingly, Applicants respectfully request that the rejection be withdrawn.

#### Conclusion

As it is believed that the application is in condition for allowance, a favorable action and Notice of Allowance are respectfully requested.

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Respectfully submitted,



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